

Knowledge Regarding Role of Anaesthesia Technologists among Patients Undergoing Elective Surgery in Multispeciality Hospitals of Aurangabad Maharashtra

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ABSTRACT

Objective: The major objective of the study is to assess the knowledge of patients undergoing elective surgery regarding the role of anaesthesia technologists. The roles of anaesthesia technologists are unknown and unrecognized by the public. There is a need to aware and educate the normal population regarding the role of anaesthesia technologists as they play a vital role in peri-operative management of patient along with anaesthesiologists

Methods: This cross-sectional hospital-based study was conducted with the help of questionnaire that assesses the basic knowledge and awareness about role of anaesthesia technologists. A total of 267 participant's responses were recorded in Microsoft Excel and analysed in the Statistical Package of the Social Sciences.

Results: The present study showed that participant's overall knowledge was good but they were not aware about the work and role of anaesthesia technologists. Only 38.2% of participants were well trained aware that anaesthesia technologist's role is to assist anaesthesiologists. The majority of the participants are well aware that preparation of anaesthesia is done by anaesthesia technologists.

Conclusion: Efforts should be directed towards the information which increases the awareness of public of the role of anaesthesia technologists will contribute towards the improvement of awareness regarding the fraternity of anaesthesia technologists.

KEYWORDS: Anaesthesia technologists, roles, responsibilities, knowledge, awareness, surgery

INTRODUCTION

There is a stupendous growth in the field of Allied Health Sciences under which Anaesthesia Technology plays a vital role in the healthcare system. Anaesthesia technologists are an important team member in the anaesthesia team who helps in the peri-operative management of patients and also outside the operation theatre i.e., in the ICU and

casualties, still they do not get due acknowledgement. There is a limited awareness of public towards anaesthesia technologists. It is crucial for us to spread awareness about the role played by anaesthesia technologists in healthcare setting.

Anaesthesia Technology as a speciality has grown tremendously over the last few years. Anaesthesia

How to cite this paper: Sujata Walode | Ms. Anugretha Anil Dhanke | Dr. Rajesh Dase | Shivkanya Garud | Rehaan Patel "Knowledge Regarding Role of Anaesthesia Technologists among Patients Undergoing Elective Surgery in Multispeciality Hospitals of Aurangabad Maharashtra"

Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-8 | Issue-2, April 2024, pp.184-190, URL: www.ijtsrd.com/papers/ijtsrd64582.pdf



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Technologists are required along with the anaesthesiologists for assistance during every procedure. They are the helping hands of anaesthesia team as well as surgical team i.e., during induction and positioning of the patient. They play a major role in operation theatre from entrance of patient till exit and also in recovery room, casualty and ICUs. Still the role of anaesthesia technologists is not clear and not known by the people. It is widely confused by the role of nursing staff.

Anaesthesiology is the art and science for relieving pain intra-operatively where safety is the most important priority through eternal vigilance. Anaesthesia and anaesthesiologists had got “behind the screen” role from the beginning. The anaesthesiologists are regarded by the vast majority of patients as the ultimate assistants of the surgeon, excelling in their ability to induce sleep and awaken patient’s post-surgery. Likewise, anaesthesia technologist’s role is also considered behind the screen, unexposed and is not recognized by the patient. Anaesthesia technologists participate as the primary assistant to anaesthesia for procedures in the operating room. They assist the anaesthesiologists and help them for patient care, monitoring, areas outside the operation theatre i.e., in pain clinics, labour analgesia, trauma and emergency as well as in ICU.

An anaesthesia technologist assists pre-operatively, intra-operatively and post operatively. They have significant patient contact while assisting in transport and procedures. They work collaboratively with anaesthesia, nursing staff and off-site resources. In addition, they assist with preparation of anaesthesia supplies. They are exceptionally proficient in the sterilization, maintenance, packing, and resupplying of the intricate anaesthesia supplies and equipment of the operating room. They are expertise in the sterilization, maintenance, packing and resupplying of the complex anaesthesia supplies and equipment of operating room. They also assist during pre-anaesthesia check-up of patient pre-operatively and when available responds to code of anaesthesia. However, despite being working so hard in the peri-operative management of patient and handling anaesthesia equipment’s inside the operating room as well as other areas of hospital, it is observed that anaesthesia technologists do not get due they deserve in the eyes of public as well as fellow healthcare professionals.

There have been studies on assessment of knowledge on anaesthesia and role of anaesthesiologists before. There have been no studies previously regarding assessment of knowledge of role of anaesthesia

technologists. The aim of the study is to assess the knowledge of patients undergoing elective surgery regarding the role of anaesthesia technologists in multi- speciality hospitals of Aurangabad Maharashtra.

Material & Methods

A cross- sectional hospital-based study was conducted among patients of multi- speciality hospital in Aurangabad, Maharashtra. The study was conducted over a brief period of three months.

Sample Size

For present study sample size is calculated by considering peoples are having knowledge of anaesthesia technologists of 50%. Required sample size was 267 participants.

Methodology

The survey was conducted in the preoperative period. The survey was done by self-structured and validated questionnaire. The questionnaire was reviewed and validated by Associate Professors of department of Anaesthesiology. The questionnaire consists of two sections. The first section included the demographic data of the patient in which we asked them about their age, gender, education, occupation, area of living, source of information, and type of surgery. The second section had questions on the role of anaesthesia technologists. There were 13 questions in this questionnaire. It was carried out by the undergraduate intern students posted in MGM Hospital. After confirmation of their willingness to participate in the study, the patients were explained about the questionnaire and its pattern. The questionnaire was available in two languages- Marathi and English. Patients could select the language of their choice. For illiterate patients and patients not known to Marathi and Hindi language had an interpreter who helped them in explaining and asking questions to patients and answers were ticked by the student answered by the patient. Literate patients were given the questionnaire and were asked to tick the correct answer of their choice. After 3 months, survey questionnaire data was collected and analysed. Ethical approval was obtained from the Ethical Committee of MGM Medical college & Hospitals, Aurangabad to perform the study.

Inclusion Criteria

Adults in the age group of 18- 65 years who had American Society of Anaesthesiologists (ASA) grade 1 and 2, undergoing elective surgeries and who are willing to participate and submitted informed consent for the study.

Exclusion Criteria

Patients of <18 and > 65 years with ASA grade 3 and above, undergoing emergency surgeries, having a

history of psychological disorder, and are not willing to participate were excluded from the study.

Statistical Analysis

Data was entered in Microsoft Excel and analyzed using IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp. The normality of data was checked using Shapiro Wilk test. The chi-square test was applied to check the association between demographic data and knowledge. The significance level for checking the p-value is set at 5%.

The mean and standard deviation (SD) were calculated with exceptional precision for quantitative variables, while proportions were calculated with unparalleled accuracy for categorical variables.

Results

The study was conducted on 267 participants in which majority of the participants were in 26-45 years of age group (41.2%), 135 (50.6%) were male and 132(49.4%) were female. The majority of participants were from groups other than medical and paramedical 223 (88.3%). Most of the participants were on a higher level of education 74 (27.7%). Maximum participants belonged to rural areas 152 (56.9%) and mostly the participants knew about anaesthesia technologists from their relatives 78 (29.2%). Most of the participants were posted for orthopedic surgeries 71 (26.6%) [Table 1].

Table 1

Patients Characteristics	N (%)
Age	
18-25 Yrs	76 (28.5)
26-45 Yrs	110 (41.2)
46- 65 Yrs	81 (30.3)
Gender	
Male	135 (50.6)
Female	132 (49.4)
Occupation	
Medical	14 (5.2)
Paramedical	30 (11.2)
Others	223 (83.6)
Qualification	
Illiterate	34 (12.7)
Primary School	19 (7.1)
Hsc	47 (17.6)
Ssc	41 (15.4)
Graduate	74 (27.7)
Post Graduate	14 (5.2)
Other	38 (14.2)
Area Of Living	
Rural	152 (56.9)
Urban	115 (43.1)

Source of Information	
Social Media	24 (9.0)
Relatives	78 (29.2)
Friends	29 (10.9)
Self-Exposure	57 (21.3)
Medical Staff	59 (22.2)
Newspaper	10 (3.7)
Article/Books	10 (3.7)
Type Of Surgery	
Orthopedic	71 (26.6)
Neurology	21 (7.9)
Urology	49 (18.4)
Gynaecology	56 (21.0)
Cardiac	23 (8.6)
Plastic	27 (10.1)
Gastroenterology	20 (7.5)

Knowledge of Patients [TABLE 2]

Table 2 shows the knowledge of participants regarding anaesthesia technologists. Out of 267 participants, less than half (47.2%) of the participants knew that Anaesthesia Technologist is an Assistant. 56.6% of the participants were aware that a graduate is qualified for the post of anaesthesia technologist. Also, a very few participants (42.7%) were aware that the anaesthesia technologists and nurses are not same. Role of anaesthesia technologist is assisting anaesthetist; surgeon and the team members of operation theatre was known to only 47.2% of the participants. Only 43.4% of the participants had read about the roles of the anaesthesia technologist in any article, books or magazine.

Less than two third of the participants were aware about where anaesthesia technologists work in a hospital setup. As less as 44.9% of them knew that anaesthesia technologist stays throughout the surgery. Half of the participants (53.2%) were aware that the preparation of anaesthetic equipment's is done by anaesthesia technologist. Only 40.1% of the participants knew that anaesthesia technologists are not the authorized personnel to administer anaesthesia independently. It is very unsettling to see that only 38.2% of the participants were aware that the role of anaesthesia technologists is assisting anaesthesiologists, monitoring of patient and helping in positioning of patient. Almost only two third of the participants (63.7%) knew that it is compulsory for the anaesthesia technologists to be present with anaesthetist during the procedure. One anaesthesia technologist should be present with anaesthetist in OT was known to only 62.5% of the participants. Sadly, only 37.8% participants were aware that anaesthesia technologists are responsible for the recovery of patient.

TABLE 2

QUESTIONS	n (%)
Who is an Anaesthesia Technologist?	
Doctor	78(29.2)
Specialist	13(4.9)
Assistant	126(47.2)
No idea	50(18.7)
What is the qualification of an anaesthesia technologist?	
HSC passed	29(10.9)
Graduate	151(56.6)
Certificate	14(5.2)
Diploma	17(6.4)
No idea	56(21.0)
Are the nurses and anaesthesia technologists same?	
Yes	89(33.3)
No	114(42.7)
No idea	64(24.0)
What is the role of Anaesthesia Technologist?	
Performing surgery	21(7.9)
Administering anaesthesia	67(25.1)
Assisting anaesthetist, surgeon and the team members of operation theatre	126(47.2)
Writing prescription of drugs	6(2.2)
No idea	47(17.6)
Have you read about the roles of anaesthesia technologist in any article, books or magazine?	
Yes	116(43.4)
No	151(56.6)
Where does the different area where anaesthesia technologist's work in hospital set up?	
Operation theatre	116(43.4)
ICU	11(4.1)
Recovery room	4(1.5)
All of the above	99(37.1)
No idea	37(13.9)
Does the anaesthesia technologist stay throughout the surgery?	
Yes	120(44.9)
No	57(21.3)
No idea	90(33.8)
Preparation of anaesthetic equipment's is done by?	
Anaesthetist	39(14.6)
Surgeon	19(7.1)
Anaesthesia technologist	142(53.2)
Nurses	22(8.2)
No idea	45(16.9)
Are anaesthesia technologists the authorized personnel to administer anaesthesia independently?	
Yes	58(21.7)
No	107(40.1)
No idea	102(38.2)
What does Anaesthesia technologists do during administration of anaesthesia?	
Assisting anaesthesiologists	73(27.3)
Monitoring of patient	22(8.2)
Helping in positioning of patient	19(7.1)
All of the above	102(38.2)
No idea	50(18.7)

Is it compulsory for anaesthesia technologists to be present with anaesthetist during the procedure?	
Yes	170(63.7)
No	28(10.5)
No idea	69(25.8)
How many anaesthesia technologists should be present with anaesthetist in OT?	
1	167(62.5)
2	65(24.3)
3	20(7.5)
More than 3	14(5.9)
Are the anaesthesia technologists responsible for the recovery of patient?	
Yes	101(37.8)
No	94(35.2)
No idea	72(27.0)

TABLE 3

		AGECL			Total	Chi-Square VALUE	p- VALUE
		18-25 (N=76)	26-45 (N=110)	46-65 (N=80)			
1. Who is an Anaesthesia Technologists	A	21	27	30	78	31.56	P<0.0001 s
	B	3	3	7	13		
	C	47	59	19	125		
	D	5	21	24	50		
2. Are the nurses and the anaesthesia technologists same?	A	29	39	21	89	20.66	P<0.0001 s
	B	40	46	27	113		
	C	7	25	32	64		

TABLE 4

		QUALIFICATION		Total	Chi-Square Value	p-VALUE
		1	2			
1. Who is an Anaesthesia Technologists	A	58	20	78	65.25	P<0.0001 s
	B	10	3	13		
	C	33	92	125		
	D	39	11	50		
2. Are the nurses and the anaesthesia technologists same?	A	31	58	89	28	P<0.0001 s
	B	59	54	113		
	C	50	14	64		

1 = HSC & SSC, 2= Graduate & post graduate

TABLE 5

		GENDER		Total	Chi-Square Value	P-value
		F	M			
1. Who is an Anaesthesia Technologists	A	46	32	78	6.09	P=0.107
	B	5	8	13		
	C	61	64	125		
	D	19	31	50		
2. Are the nurses and the anaesthesia technologists same?	A	54	35	89	8.43	P=0.015
	B	53	60	113		
	C	24	40	64		

Table 3, 4 & 5 shows association between knowledge and sociodemographic characteristics. It was found that participants in age classification of 26 – 45 years had maximum knowledge and it was significantly associated ($\chi^2 = 31.56$, $P < 0.0001$). The participants with higher knowledge i.e. graduate & post graduates had good knowledge and was significantly associated ($\chi^2 = 65.25$, $P < 0.0001$). Males had better knowledge than females. There was no association between gender, area of living & knowledge score.

Discussion

Our study was conducted to assess the knowledge about anaesthesia technologists among the patients scheduled for surgery in MGM Medical College & Hospital, Aurangabad to study the awareness about the role of anaesthesia technologists in the perioperative management of patients scheduled to undergo operations.

To the best of our knowledge, it is the first study on patients undergoing elective surgery in the Maharashtra region for assessing knowledge regarding the role of Anaesthesia technologists. This would encourage anaesthesia technologists to establish their entity in the normal public and the fraternity would be known by many more to maintain safety protocols.

Marulasiddappa, V., & Nethra, et al. theorized that most of the participants were not aware of the role of anaesthesia and anaesthesiologists inside and outside the operation theatre whereas 47.2% were aware regarding the role of anaesthesia technologists. In their study, 44% did not know that anaesthesiologists are doctors as well as in our study only 47.2% of participants knew that anaesthesia technologists are assistants.

Uma, B. R., & Hanji, A. S. They found that 54% felt anaesthesiologists were someone who was just present in the OT whereas in our study 67% of participants knew that anaesthesia technologists should be present inside Operation Theatre.

Baaj, J. et al. theorized that use of media should be used to educate illiterate sections of the patient on subjects related to anaesthesia. In our study, as well only 9% of participants knew about the information OT and anaesthesia technologists through social media.

Mathur, S. K., et al. conducted a study on patients, patient attendants, and medical undergraduates. They theorized that 100% of participants were not aware of anaesthesiology as a separate medical discipline and in our study, 56% of participants were aware that there is a different qualification required for OT & anaesthesia technologists.

In addition, Lee, J. J., et al. conducted a national survey to identify the perception of the specialty of the role of anaesthesiologists and anaesthesiology. They found that 25.2% of participants were not aware that the anaesthesiologists were in charge of anaesthesia during the surgery whereas in our study only 53% were aware that OT and anaesthesia technologists are responsible personnel for anaesthesia equipment preparation.

Walode S, et.al stated that OT & anaesthesia technologists are personnel who are required in OT, casualty, ICUs, and different areas of hospital and outside hospitals but in our study, only 37.2% of participants knew that they are required in different departments of the hospital.

Our study shows that anaesthesia technologists although plays an important role, many of the patients are not aware about the role of anaesthesia technologists. There is a much need of efforts to be taken by the anaesthesia technologists in educating the patients. For the improvement in awareness in community, there is a need of increasing communication with patients. Exposure in the community through social media, newspapers and lectures and be increased. Efforts directed towards the information which increases the awareness of public of the role of anaesthesia technologists will contribute towards the improvement of awareness regarding the fraternity.

Limitations of the study

This study is institution-based which could limit its generalizability and the cross-sectional nature of the study would also limit its ability to establish a temporal relation.

Conclusion

Most of the patients in our study were not aware of the role of anaesthesia technologists, the requirements of anaesthesia technologists in OT, and the roles and responsibilities of anaesthesia technologists. Although this could be attributed to their lower level of education, the fraternity of anaesthesia technologists has a very important responsibility to educate patients regarding their importance, and requirements in operation theatre and ICUs and also the very crucial role played by anaesthesia technologists inside and outside OT. These can be achieved by interacting more with patients in the preoperative period or PACs. Also, social media can also play a very important role in exploring their roles among the public.

This could go a long way in improving and recognizing the image of anaesthesia technologists with the patients and also among the public at large.

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